

VI. *Observations on the Economy of Brazilian Insects, chiefly Hymenoptera, from the Notes of Mr. Peckolt.* By FREDERICK SMITH, late Pres. Ent. Soc.

[Read 3rd February, 1868.]

At the September meeting of this Society in 1866, I communicated some highly interesting notes by Mr. Peckolt, of Cantagallo, in Brazil, on the economy of various species of Aculeate *Hymenoptera*; these having proved of sufficient interest to furnish a short paper, subsequently printed in our Transactions [Tr. Ent. Soc. third series, vol. v. p. 323], my correspondent has forwarded a second collection, accompanied by notes on the economy of the various species.

In the paper alluded to, I described, I believe for the first time, a female of one of the stingless honey-bees, the *Trigona Mosquito*; Mr. Peckolt forwarded a small colony of this bee, together with the nest, and I succeeded in discovering among them a single gravid female, as well as five others of the same sex, which I believe to have been virgin queens, their abdomens not being distended as that of the old queen was; this circumstance induced me to hazard a conjecture as to the probability of these bees swarming in the same manner as *Apis mellifica*. Mr. Peckolt now writes as follows:—"Your conjecture respecting the swarming of *Trigona Mosquito* is now confirmed; I made inquiry of several people, who told me they had observed the swarming of these bees, but I had never done so myself. I have, therefore, in consequence of your notice, obtained hives of three or four species, which I have established in my garden. I have also searched six separate hives, to see whether there was more than one female in each,—that is, one that was impregnated; and from your description, I had no difficulty in recognizing the queen; but I never could find more than one. I have now in my garden, one hive of *Trigona Mosquito*, one of *Trigona ruficus*, one of *Trigona Mandacaiá*, and one of *Trigona Urucu*. I very frequently watch them during the day, and have observed *Trigona ruficus* swarm, just like the European honey-bees. This I have done about the end of March, when the cold time begins, whilst in April, May, June and July, they appear to increase very scantily, I suppose in order

not to raise too many useless feeders. The first swarming that I observed occurred during a thunder-storm. A great number left their hive, with their queen, just as I have seen the honey-bee *Apis mellifica*, and indeed their mode of life appears to be almost identical."

The value of these observations will be appreciated by every Entomologist, since, taken in conjunction with those published in my former paper on the stingless honey-bees, we have now acquired almost a complete history of their economy. In Mr. Peckolt's notes on different species, we find the observations of former naturalists fully corroborated; he says, some construct their nests in hollow trees, some in the ground, whilst others construct suspended nests of clay on trees and bushes. The quality of the honey varies considerably in the different species; of one it is said to be very good, that of another tolerably so, of another it is poor and rather tasteless, whilst that of some is said to be unpalatable.

With regard to the different modes of building, we are prepared to expect such to be the case; having examined the mandibles of a large number of species, I have found some which have those organs finely denticulate on their inner margin, others with only five or six strong teeth, whilst many species have the mandibles edentate. The quality of the honey will, of course, depend upon the flowers from which the bees extract it. The honey collected by the hive-bee in this country differs in quality according to the district in which it is obtained by the bees: I have been informed that honey from some of the districts in Hampshire is perhaps the finest of all; this is said to be attributable to the extensive heaths, covered with *Erica*, from which the bees obtain the honey. Many of our solitary bees are rarely observed to visit any but particular flowers, and probably such is the case with different species of the genus *Trigona*.

The observations on various solitary *Hymenoptera* are also interesting; the following are the most so: I have retained the local names given by Mr. Peckolt, and have, when possible, added the scientific one also.

*Trigona Jatai*. This species produces a very fine kind of honey.

*Trigona basalis*. This is called dog-bee, or earth-bee, because it makes its nest in the ground, not in trees like *Trigona ruficrus*.

*Trigona Cupira* is an earth-bee, and makes good honey.

“Marimbouda amarella” is *Pelopceus fistularis* of Dahlbom, a house-wasp; it makes a clay nest, and stores it with spiders.

“Marimbouda da Casa” is *Trypoxylon albitarse*; it makes a clay nest in the form of a long cylinder; it is called the “house-wasp” because it builds its nest especially in rooms, but also out of doors on the vine, &c.; there are from four to six divisions, and in each cell is laid one egg; the cell is filled with some kind of spider, and hermetically sealed; it is curious that precisely the required number of spiders is stored up, just sufficient to perfect the wasp, since none are ever found after the insect eats its way out of its earthen cell.

“Bisurra amarella pignena” is the *Centris ferruginea* of St. Fargeau; it makes its nest in the ground, and is very spiteful and vicious.

“Bisurra amarella grande” is the *Centris fuscata* of St. Fargeau.

“Marimbouda de cachorro” is the *Sphex fulvipennis*; it constructs its nest under ground.

“Marimbouda accii” is a large species of the genus *Pepsis*; it is the enemy of the large bush-spider; it is astonishing to see this insect attack the uncouth spider, ten times as large as itself, and overpower it; but it is always the victor.

“Marimbouda tatu” is *Chartergus apicalis*; it is said to be a very furious wasp; its nest is built on trees, and if in any way disturbed, a swarm of the wasps rush furiously to the attack.

“Marimbouda preta da bunda” is *Liogastra bicolor* of Perty; this bee is described as a very furious wasp, and is said to be very widely spread over the country.

The collection contained a few insects of other Orders. Among the *Diptera*, there is one which is called the “Warega” fly. This is said to be the pest of both man and animals; it is a species of *Musca*, and is said to lay its eggs in the skin; large and terrible swellings are formed; the mode of extracting the maggot is to cut an opening, and to press it out,—a most painful operation; these wounds are very difficult to cure.

Another dipterous insect is called the “Berna” fly, which deposits its eggs in wounds, both on man and beast; it is a species of the genus *Trypeta*, and is remarkable from having the apical segment of the abdo-

men elongated into a long ovipositor; Mr. Peckolt says the negroes suffer much from the attacks of this fly, which frequently deposits its eggs in their nostrils whilst they are sleeping, and such are the effects of its attacks, that, in some cases, death ensues.

Another dipterous insect is called "Marimbouda santa," the holy wasp, having, as the people say, a priest's coat; the insect is a species of the genus *Sargus*, and is distinguished by having a yellow cross at the base of the abdomen.

Mr. Peckolt has also sent a phial containing a specimen of a caterpillar, that lives in companies of from thirty to forty; they spin together a large cocoon, as big as a man's head, in which they undergo their change. This caterpillar is ornamented with a number of fringed spines or branches, and is very destructive to various shrubs. It probably belongs to some species of butterfly. [See Proc. Ent. Soc. 1868, p. xv.]

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